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09/857,424	06/04/2001	Mikiko Matsuo	OGOH:079	3359

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Parkhurst & Wendel
Suite 210
1421 Prince Street
Alexandria, VA 22314-2805

EXAMINER	
SANTIAGO, MARICELI	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/857,424	MATSUO ET AL.	
	Examiner	Art Unit	
	Mariceli Santiago	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-62* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11-21* is/are allowed.

6)☒ Claim(s) *1-6,8,10,22-38,40-46 and 48-62* is/are rejected.

7)☒ Claim(s) *7,9,39 and 47* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi et al. (JP 11074083, for rejection purposes refer to English counterpart US 6,575,800).

Regarding claims 1, 2 and 10, Kobayashi discloses a lightning device using a light-emitting device having an emission region between an anode and a cathode, wherein the emission region comprises material contributable to emission and a medium for containing the material, and wherein the material contributable to the emission has a substantially successive distribution of concentration in the thickness direction, i.e., from the anode side of the emission region toward the cathode side thereof and vice versa, and wherein the concentration reduces from the one side toward the other side successively (Fig. 5, Column 12, lines 30-55).

Claims 1-5 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakano et al. (JP 04357694).

Regarding claims 1, 2 and 10, Nakano discloses a lightning device using a light-emitting device having an emission region between an anode and a cathode, wherein the emission region comprises material contributable to emission and a medium for containing the material, and wherein the material contributable to the emission has a substantially successive distribution of concentration in the thickness direction, i.e., from the anode side of the emission region toward the cathode side thereof and vice versa, and wherein the concentration reduces from the one side toward the other side successively (Abstract).

Regarding claim 3 and 4, Nakano discloses a light-emitting device wherein the emission region further comprises a charge transport material, wherein the charge transport material has a substantially successive distribution region in the thickness direction, i.e., toward the cathode side thereof and vice versa (Abstract).

Regarding claim 5, Nakano discloses a light-emitting device having a charge transport region between an anode and a cathode, wherein the charge transport region comprises charge transport material and a medium for containing the charge transport material, and wherein the charge transport material has a substantially successive distribution of concentration in the thickness direction, i.e., from the cathode side of the charge transport region toward the anode side thereof and vice versa (Abstract).

Claims 1-6, 8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Choong et al. (US 6,114,055).

Regarding claims 1, 2 and 10, Choong discloses a lightning device using a light-emitting device having an emission region between an anode and a cathode, wherein the emission region comprises material contributable to emission (hole or electron transport material) and a medium for containing the material, and wherein the material contributable to the emission has

a substantially successive distribution of concentration in the thickness direction, i.e., from the anode side of the emission region toward the cathode side thereof and vice versa, and wherein the concentration reduces from the one side toward the other side successively (Abstract).

Regarding claim 3 and 4, Choong discloses a light-emitting device wherein the emission region further comprises a charge transport material, wherein the charge transport material has a substantially successive distribution region in the thickness direction, i.e., toward the cathode side thereof and vice versa (Abstract).

Regarding claim 5, Choong discloses a light-emitting device having a charge transport region between an anode and a cathode, wherein the charge transport region comprises charge transport material and a medium for containing the charge transport material, and wherein the charge transport material has a substantially successive distribution of concentration in the thickness direction, i.e., from the cathode side of the charge transport region toward the anode side thereof and vice versa (Abstract).

Regarding claim 6, Choong discloses a light-emitting device wherein the emission region includes a region where the material contributable to the emission is not present (Abstract).

Regarding claim 8, Choong discloses a light-emitting device wherein the charge transport region includes a region where charge transport material is not present (Abstract).

Claims 22-27, 29, 31-38, 40-46, 48-56 and 58-62 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirasaki et al. (US 5,895,692).

Regarding claim 22-26, Shirasaki discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a disposing step of disposing a medium containing charge transport material on the anode or the cathode, a containing step of allowing material contributable to emission and

charge transport material to be contained in the medium to form the emission region (Column 4, lines 55-60).

Regarding claim 27, Shirasaki discloses a method wherein in the containing step, the material contributable to the emission is penetrated into the medium, whereby it is contained in the medium (Column 4, lines 55-60).

Regarding claim 29, Shirasaki discloses a method wherein in the containing step, solution obtained by the material contributable to the emission being dissolved in solvent is brought into contact with the medium, whereby the material is penetrated into the medium (Column 7, lines 14-23).

Regarding claim 31, Shirasaki discloses a method wherein in the containing step, the material contributable to the emission is penetrated into the medium in an ink jet method (Column 7, lines 14-23).

Regarding claim 32, Shirasaki discloses a light-emitting device having an emission region between an anode and a cathode, wherein the emission region comprises material contributable to the emission to a specific region is provided between the anode and the cathode (Column 4, lines 55-60).

Regarding claims 33, 34, 42 and 43, Shirasaki discloses a light-emitting device having an emission region between an anode and a cathode, wherein at least one of the anode side of the emission region and a cathode side therefor is made porous/roughened (Column 5, lines 29-38), wherein material contributable to emission is included in a surface or a region in the vicinity of the emission region which is made porous/roughened (Column 4, lines 55-60).

Regarding claim 35, Shirasaki discloses a light-emitting device wherein charge transport material is included in a surface of the emission region which is made porous/roughened (Column 4, lines 55-60).

Regarding claims 36 and 44, Shirasaki discloses a light-emitting device wherein a leveled layer (14) comprising charge transport material is provided on a surface of the emission region which is made porous/roughened.

Regarding claims 37 and 45, Shirasaki discloses a light-emitting device having a charge transport region between an anode and a cathode, wherein at least one of an anode side of the charge transport region and a cathode side thereof is made porous/roughened (Column 5, lines 29-38).

Regarding claims 38 and 46, Shirasaki discloses a light-emitting device wherein the charge transport region is a hole transport region (Column 5, lines 29-38).

Regarding claims 40, 41, 48 and 49, Shirasaki discloses a light-emitting device wherein the emission region comprises an organic material or a polymer (Column 4, lines 55-60).

Regarding claims 50-51, Shirasaki discloses a display or light deice using the light-emitting device as claimed.

Regarding claims 52 and 53, Shirasaki discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a medium disposing step of disposing a medium on the anode or the cathode, a porosity producing step of making at least a part of the medium porous (Column 5, lines 29-38), and a disposing step of disposing material contributable to emission on a porous surface of the medium, so that the emission region is formed by the medium and the material contributable to the emission (Column 4, lines 55-60).

Regarding claim 54, Shirasaki discloses a producing method of a light0emitting device having an emission region between an anode and a cathode, the producing method comprising a medium disposing step of disposing a medium on the anode or the cathode, a porosity producing step of making at least a part of the medium porous (Column 5, lines 29-38), a

containing step of allowing material contributable to emission to be contained in a region in the vicinity of a porous surface of the medium (Column 4, lines 55-60), so that the emission region is formed by the medium and the material contributable to the emission, and a disposing step of disposing charge transport material (14) on a porous surface of the medium (13).

Regarding claim 55, Shirasaki discloses a method which comprises a disposing step of disposing charge transport material (14) on a porous surface of the emission region.

Regarding claim 56, Shirasaki discloses a method which comprises a leveled layer (14) forming step of forming a leveled layer comprising charge transport material on the emission region.

Regarding claim 58, Shirasaki discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a medium disposing step of disposing a medium on the anode or the cathode and a roughening step of roughening a part of the medium (Column 5, lines 29-38).

Regarding claim 59, Shirasaki discloses a producing method of a light0emitting device having an emission region between an anode and a cathode, the producing method comprising a medium disposing step of disposing a medium on the anode or the cathode and a roughening step of roughening at least one of an anode side of the medium and a cathode side thereof (Column 5, lines 29-38), and a disposing step of disposing material contributable to emission on a porous surface of the medium, so that the emission region is formed by the medium and the material contributable to the emission (Column 4, lines 55-60).

Regarding claim 60, Shirasaki discloses a producing method of a light0emitting device having an emission region between an anode and a cathode, the producing method comprising a medium disposing step of disposing a medium on the anode or the cathode and a roughening step of roughening at least one of an anode side of the medium and a cathode side thereof

(Column 5, lines 29-38), and a containing step of allowing material contributable to emission to be contained in a region in the vicinity of a roughened surface of the medium, so that the emission region is formed by the medium and the material contributable to the emission (Column 4, lines 55-60).

Regarding claim 61, Shirasaki discloses a method which comprises a leveled layer (14) forming step of forming a leveled layer comprising charge transport material on the emission region.

Regarding claim 62, Shirasaki discloses a method wherein the roughening step is a step of roughening the emission region by dry etching (Column 5, lines 29-38).

Claims 22-30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagai et al. (US 5,702,833).

Regarding claim 22, Nagai discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a disposing step of disposing a medium on the anode or the cathode, a containing step of allowing material contributable to emission to be contained in the medium to form the emission region (Fig. 4, Column 15, lines 41-52).

Regarding claim 23, Nagai discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a disposing step of disposing a medium containing charge transport material on the anode or the cathode, a containing step of allowing material contributable to emission to be contained in the medium to form the emission region (Fig. 4, Column 15, lines 41-52).

Regarding claim 24, Nagai discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising

a disposing step of disposing a medium on the anode or the cathode, a containing step of allowing material contributable to emission and charge transport material to be contained in the medium to form the emission region (Fig. 4, Column 15, lines 41-52).

Regarding claim 25, Nagai discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a disposing step of disposing a medium containing charge transport material on the anode or the cathode, a containing step of allowing material contributable to emission and charge transport material to be contained in the medium to form the emission region (Fig. 4, Column 15, lines 41-52).

Regarding claim 26, Nagai discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a disposing step of disposing a medium on the anode or the cathode, a containing step of allowing charge transport material to be contained in the medium to form the emission region (Fig. 4, Column 15, lines 41-52).

Regarding claim 27, Nagai discloses a method wherein in the containing step, the material contributable to the emission is penetrated into the medium, whereby it is contained in the medium (Fig. 4, Column 15, lines 41-52).

Regarding claim 28, Nagai discloses a method wherein in the containing step, the material contributable to the emission and the charge transport material are penetrated into the medium, whereby it is contained in the medium (Fig. 4, Column 15, lines 41-52).

Regarding claim 29, Nagai discloses a method wherein in the containing step, solution obtained by the material contributable to the emission being dissolved in solvent is brought into contact with the medium, whereby the material is penetrated into the medium (Fig. 4, Column 15, lines 41-52).

Regarding claim 30, Nagai discloses a method wherein in the containing step, solution obtained by the material contributable to the emission and the charge transport material being dissolved in solvent is brought into contact with the medium, whereby the materials are penetrated into the medium (Fig. 4, Column 15, lines 41-52).

Regarding claim 32, Nagai discloses a light-emitting device having an emission region between an anode and a cathode, wherein the emission region comprises material contributable to the emission to a specific region is provided between the anode and the cathode (Fig. 4, Column 15, lines 41-52).

Claims 33-36, 40, 42-44, 48, 50-52 and 58 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirasaki (JP 08-279628).

Regarding claims 33, 34, 42 and 43, Shirasaki discloses a light-emitting device having an emission region between an anode and a cathode, wherein at least one of the anode side of the emission region and a cathode side therefor is made porous/roughened, wherein material contributable to emission is included in a surface or a region in the vicinity of the emission region which is made porous/roughened (Abstract).

Regarding claim 35, Shirasaki discloses a light-emitting device wherein charge transport material is included in a surface of the emission region which is made porous/roughened (Abstract).

Regarding claims 36 and 44, Shirasaki discloses a light-emitting device wherein a leveled layer (14) comprising charge transport material is provided on a surface of the emission region which is made porous/roughened (Abstract).

Regarding claims 40 and 48, Shirasaki discloses a light-emitting device wherein the emission region comprises an organic material (Abstract).

Regarding claims 50-51, Shirasaki discloses a display or light deice using the light-emitting device as claimed.

Regarding claims 52 and 58, Shirasaki discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a medium disposing step of disposing a medium on the anode or the cathode, a porosity/roughening producing step of making at least a part of the medium porous/roughened (Abstract).

Claims 53 and 57 are rejected under 35 U.S.C. 102(e) as being anticipated by Dobson et al. (US 6,265,823).

Regarding claim 53, Dobson discloses a producing method of a light-emitting device having an emission region between an anode and a cathode, the producing method comprising a medium disposing step of disposing a medium on the anode or the cathode, a porosity producing step of making at least a part of the medium porous (Fig. 1, Column 2, lines 29-48), and a disposing step of disposing material contributable to emission on a porous surface of the medium, so that the emission region is formed by the medium and the material contributable to the emission (Column 2, lines 49-54).

Regarding claim 57, Dobson discloses a producing method of a light-emitting device wherein the disposing step is a step of disposing a medium containing material soluble in a specified solvent, and the porosity producing step is a step of eluting the material from the solvent to thereby make the medium porous (Column 2, lines 29-48).

Allowable Subject Matter

Claims 11-21 are allowed over the prior art of record.

Claims 7, 9, 39 and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 7, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 7, and specifically comprising the limitation of a part of the emission region that exhibits the maximum concentration of the material contributable to the emission is away from the anode and the cathode.

Regarding claim 9, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 9, and specifically comprising the limitation of a part of the charge transport region that exhibits the maximum concentration of the charge transport material is away from the anode and the cathode.

Regarding claim 11, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 11, and specifically comprising the limitation of the material contributable to the emission has a distribution of concentration that reduces substantially successively in a direction parallel to a surface of the cathode and a surface of the anode from a substantially center of the emission region toward a periphery thereof.

Regarding claims 12-21, claims 12-21 are allowable for the reasons given in claim 11 because of their dependency status from claim 11.

Regarding claims 39 and 47, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 39 and 47, and specifically comprising the limitation of the charge transport region is an electron transport region.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mariceli Santiago whose telephone number is (571) 272-2464. The examiner can normally be reached on Monday-Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

4/2/04
Mariceli Santiago
Patent Examiner
Art Unit 2879